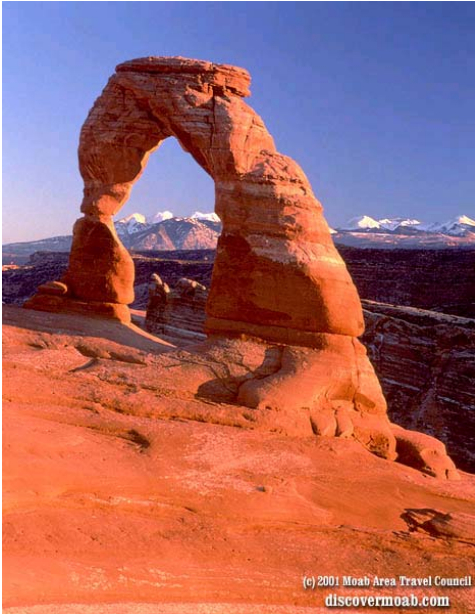


# Moab

## Transportation Master Plan



DRAFT REPORT  
April 31, 2004

Prepared By  
UDOT Planning Section  
4501 South 2700 West  
Salt Lake City, Utah 84114-3600

# Moab

## Transportation Master Plan

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City Council..... Kyle Bailey  
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FINAL REPORT

February 2005

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# 1. Introduction

## 1.1. Background

Moab, is in the southeastern part of Utah. It is about 30 miles South of I-70 on US-191. The Moab area was established in the 1880's and it experienced an explosion of growth in the 1950's and 60's as a mining town. It is now known as one of the premier outdoor recreational destinations in the country. The Moab area offers a multitude of recreational opportunities due in part to its proximity to some of the most unique and coveted landscapes in the World including The Arches National Park and the Canyonlands National Park. These recreational opportunities attract more and more visitors every year, which in turn has stimulated Moab's population and commercial growth in recent decades. This growth will continue to require transportation facilities for decades to come.



There is only one principle arterial in the study area. The principle arterial in the area is US-191. US-191 becomes Moab Main Street as it traverses the City. Main Street currently services about 17,000 vehicular trips in conjunction with several thousand bicycle/pedestrian trips each day. There are two minor arterials in the study area. State Road 128 runs along the south bank of the Colorado River east of US-191 eventually turning north to I-70 and the City of Cisco. State Road 279 (Potash Road) runs along the north bank of the Colorado River west of US-191. These facilities are not heavily traveled servicing about 200 to 700 trips a day.

The purpose of this Master Plan is not to focus primarily on the State Highways. It is a comprehensive plan for the entire Moab community. Moab has extensive local roadway systems and trail systems which service a variety of travel modes throughout the area. The purpose of this document is to attempt to identify and address all transportation related needs for the next two to three decades.

## 1.2. Study Need

The City of Moab saw a 20% increase in population from 1990 to year 2000. Traffic volumes have increased about 3% annually over the past decade. As previously stated, this increase in tourist and recreational trips warrant the need for a well-established transportation plan.

Moab has an adopted General Plan. The Moab General Plan briefly describes the plans and policies for Moab roads. The Transportation Master Plan will provide an extended list of projects to satisfy the future transportation demands for the area.

Some of the major transportation issues in Moab are as follows:

- Truck Traffic
- Speeds on Main Street
- Pedestrian / Bike issues
- Emergency Vehicle Pre-emption
- Traffic Calming
- Intersection Safety
- Bypass Feasibility



Moab recognizes the importance of building and maintaining safe roadways, not only for the auto traffic but also for pedestrians and bicyclists.

### **1.3. Study Purpose**

The purpose of this study is to develop a transportation master plan for Moab and evaluate the influence of the plan on the surrounding areas. This plan should be adopted by Moab as part of the city's General Plan. With the transportation master plan in place the city can qualify for grants from the State Quality Growth Commission.

The primary objective of the study is to establish a solid transportation master plan to guide future developments and roadway expenditures. The plan includes two major components:

- Short-range action plan
- Long-range transportation plan

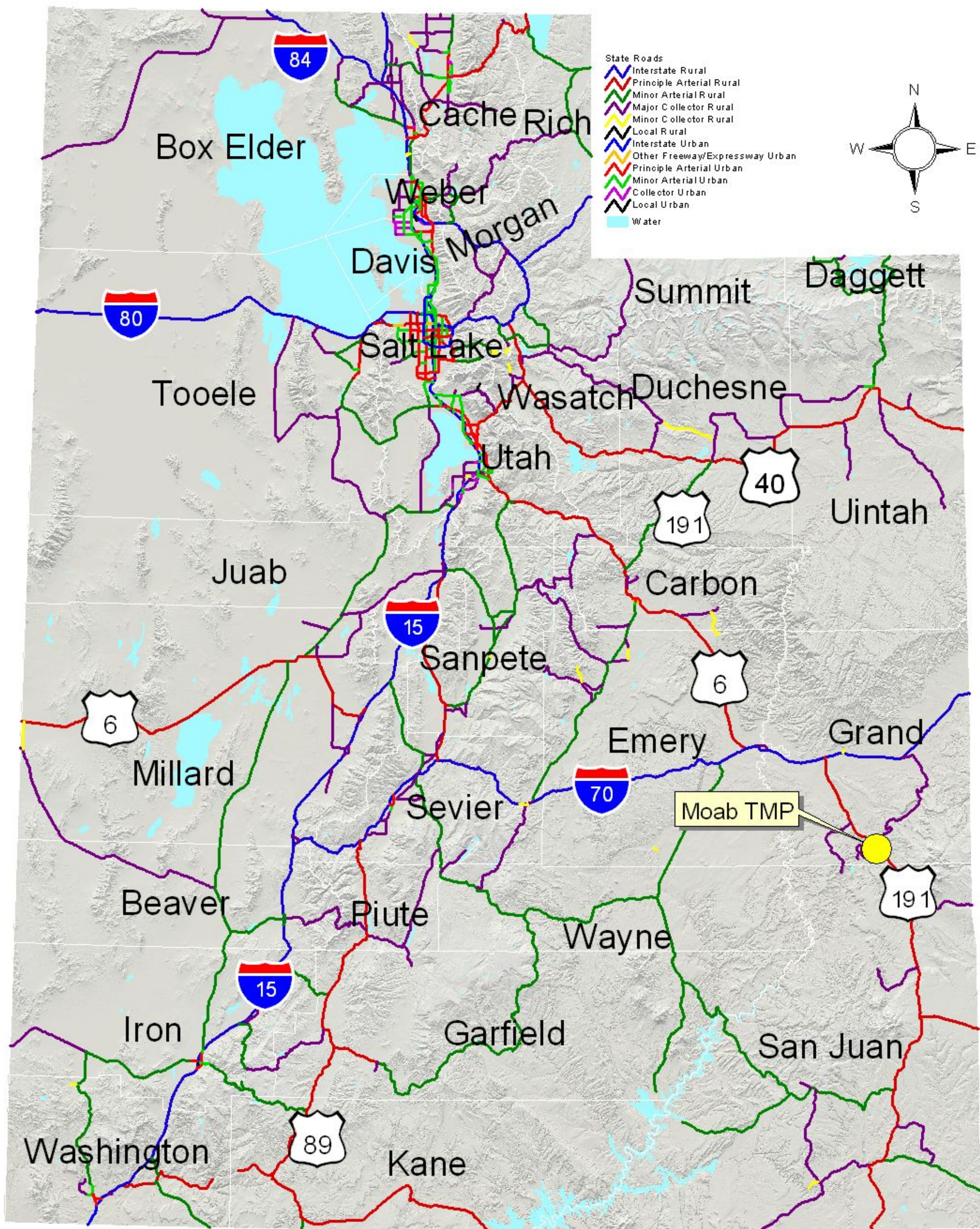
Short-range improvements focus on specific projects to improve deficiencies in the existing transportation system. The long-range plan identifies those projects that require significant advance planning and funding, and those that are needed to accommodate future traffic demand within the study area.

### **1.4. Study Area**

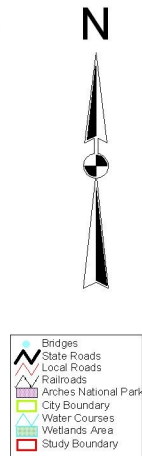
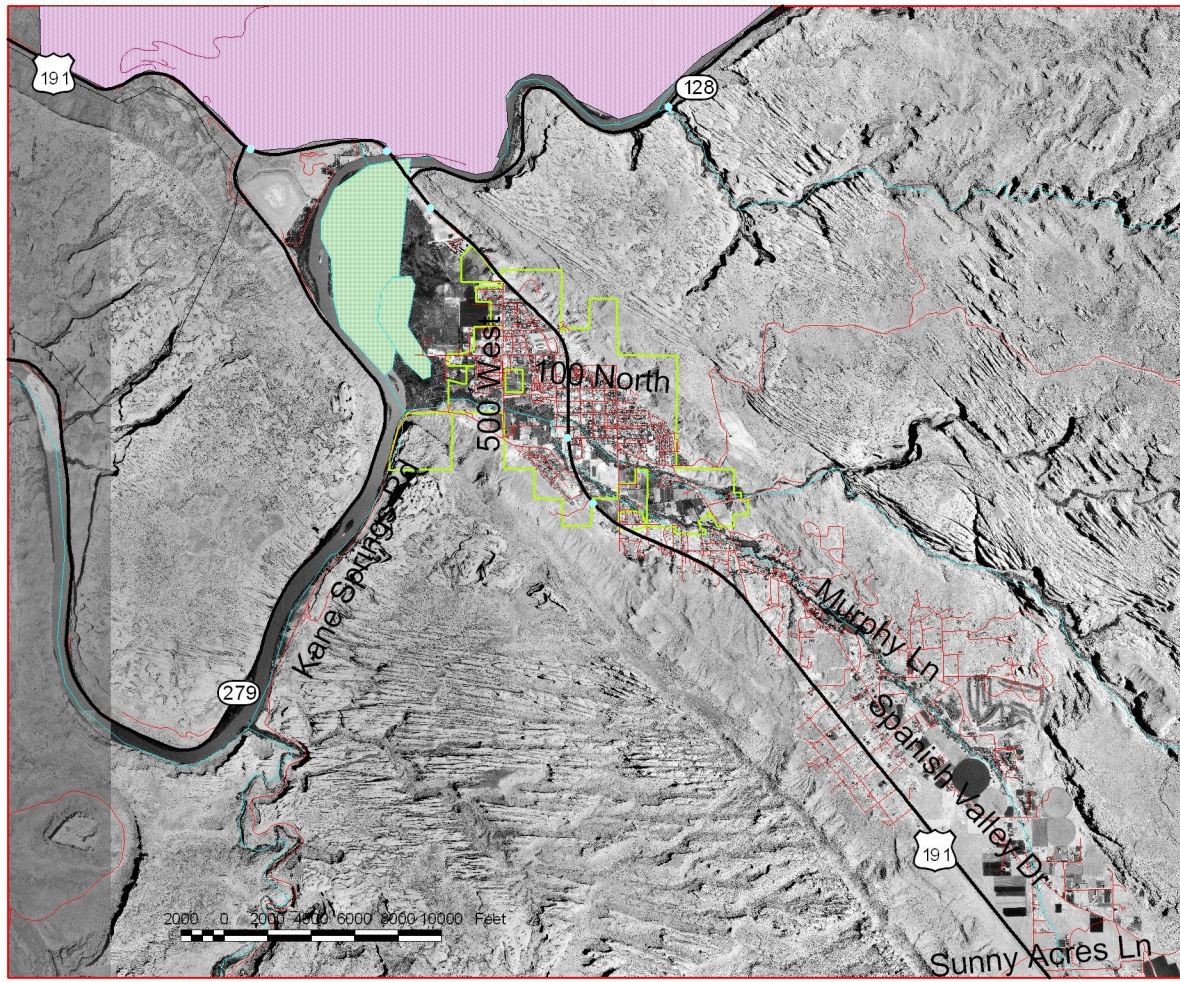
The study area includes Moab, and land adjacent to it that is in Grand County. A general location map is shown in Figure 1. A more detailed map of the study area and city limits is shown in Figure 2.

The roadway network includes US-191, SR-128, and SR-279 as well as other local and County roads in the study area. The majority of the traffic in Moab runs along US-191 (Main Street), but each of these roads provides the vital function of connecting Moab to the surrounding recreational areas and the rest of the State.











## 1.5. Study Process

The study, which began in April 2004, is being administered and financed by UDOT Planning. It is being conducted under the guidance of Moab City Staff, local officials, and local citizens. This group is referred to as the Technical Advisory Committee or “TAC” for this document. It consists of the following members listed below:

David Sakrison	Mayor, Moab
Donna Metzler	City Manager
David Olsen	Community Development
Brent Williams	Public Works Director
Robert Hugie	City Planner
Brian Hurley	City Engineer
Kyle Bailey	City Council
Gregg Stucki	City Council
Keith Brewer	City Council
Jeff Davis	City Council
Teresa Minear	City Zoning Administrator
Sam Taylor	City Planning Commission
Kara Dohrenwend	City Planning Commission
Dorothy Markle	City Planning Commission
Judy Bane	County Administrator
Dave Warner	County Road Supervisor
Jim Nyland	Sheriff
Corky Brewer	Moab Fire Department
Randy Martin	Chamber of Commerce
Shawn Bryant	Arches National Park
Tony Schetzale	Superintendent, Canyonlands National Park
Ron Ferguson	Grand County Superintendent of Schools
Melinda Snow	Middle School Principal
Mike Bynum	Business Owner
Kim Schappert	Moab Trails Alliance
Franklin Seal	Citizen
Lisa Taylor	Citizen/Business Owner
Dennis Silva	Citizen
McKay Edwards	Citizen/Business Owner
Tim Angus	Citizen
Madison Angus	Middle School Student
Michelle Wiley	Times-Independent Newspaper
Pat McGann	UDOT Maintenance Station Supervisor
Kim Manwill	UDOT Project Manager

The study process for the Moab Transportation Master Plan is comprised of three basic parts: (1) inventory and analyze existing conditions, (2) establish future conditions, and (3) develop the transportation plans. The goal of this process is to identify the need, opportunities, and constraints for establishing and implementing the transportation plans. This process involves the participation of the TAC for guidance, review, evaluation and recommendations in developing the transportation plans.

The first component of the study process will evaluate the existing traffic, infrastructure, population, and employment conditions. Evaluation of existing conditions provides a basis for the analysis of future conditions. The second component of the study process will forecast the future development of Moab.

The TAC will evaluate each part of the study process. Their comments will be incorporated into the study's draft final report. The remainder of the draft final report will focus on the recommendation and implementation portion of the transportation plan program. Transportation projects that will be recommended for the short-term and long-range needs will be developed based on the TAC's recommendations and concurrence.



The study process allows for the solicitation of input from the public at two TAC workshops. The first TAC workshop will be conducted after the inventory and analysis of existing conditions is performed and preliminary transportation improvements identified. The second TAC workshop will be conducted after the future conditions have been analyzed and transportation plans been developed.

The TAC is expected to recommend those comments that are to be incorporated into the report and applicable to the goals of this study. The draft final report and the final report will be submitted to the TAC for approval.



Upon TAC approval of the draft report, the UDOT will prepare and submit the final report to the Mayor and City Council of Moab for approval. The final report will describe the study process, findings and conclusions, and will document the analysis of the recommended transportation system projects and improvements.



## **2. Existing Conditions**

An inventory and evaluation of existing conditions within the study area was conducted. Once existing transportation issues are identified, a framework for the analysis of future conditions could be accomplished. The results of this analysis follow.

### **2.1 Land Use**

In order to analyze and forecast traffic volumes, it is essential to understand the land use patterns within the study area. The city land use is described in the following paragraph.

The Moab General Plan outlines where each of the Zoning Districts are and how the City will grow in the future. Almost all of the Commercial zoning is along Main Street. The General Plan encourages “the development and vitality of a central commercial district compatible with small-town living”. The General Plan goes on to provide a list of policies and specifications to implement this commercial atmosphere. The residential is located away from the Commercial centers along US-191.

### **2.2 Environmental**

Moab’s environment is the area’s most attractive asset. Throughout Utah there are a variety of local environmental issues. Each of the cities and counties need to look at the environmental issues in their areas on a case-by-case basis. There are many resources that can help local entities to determine what issues need to be addressed and how any problems can be resolved.

Some of the environmental concerns around the State are wetlands, endangered species, archeological sites, and geological sites among other issues. Environmental concerns should be addressed when looking at an area for any type of improvement to the transportation system. Specific issues for Moab will not be discussed here, as they are more related to specific projects as they are built.

### **2.3 Socio-Economic (Census Brief: Cities and Counties of Utah, May 2001)**

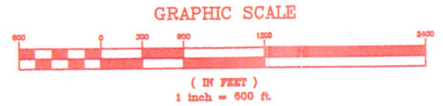
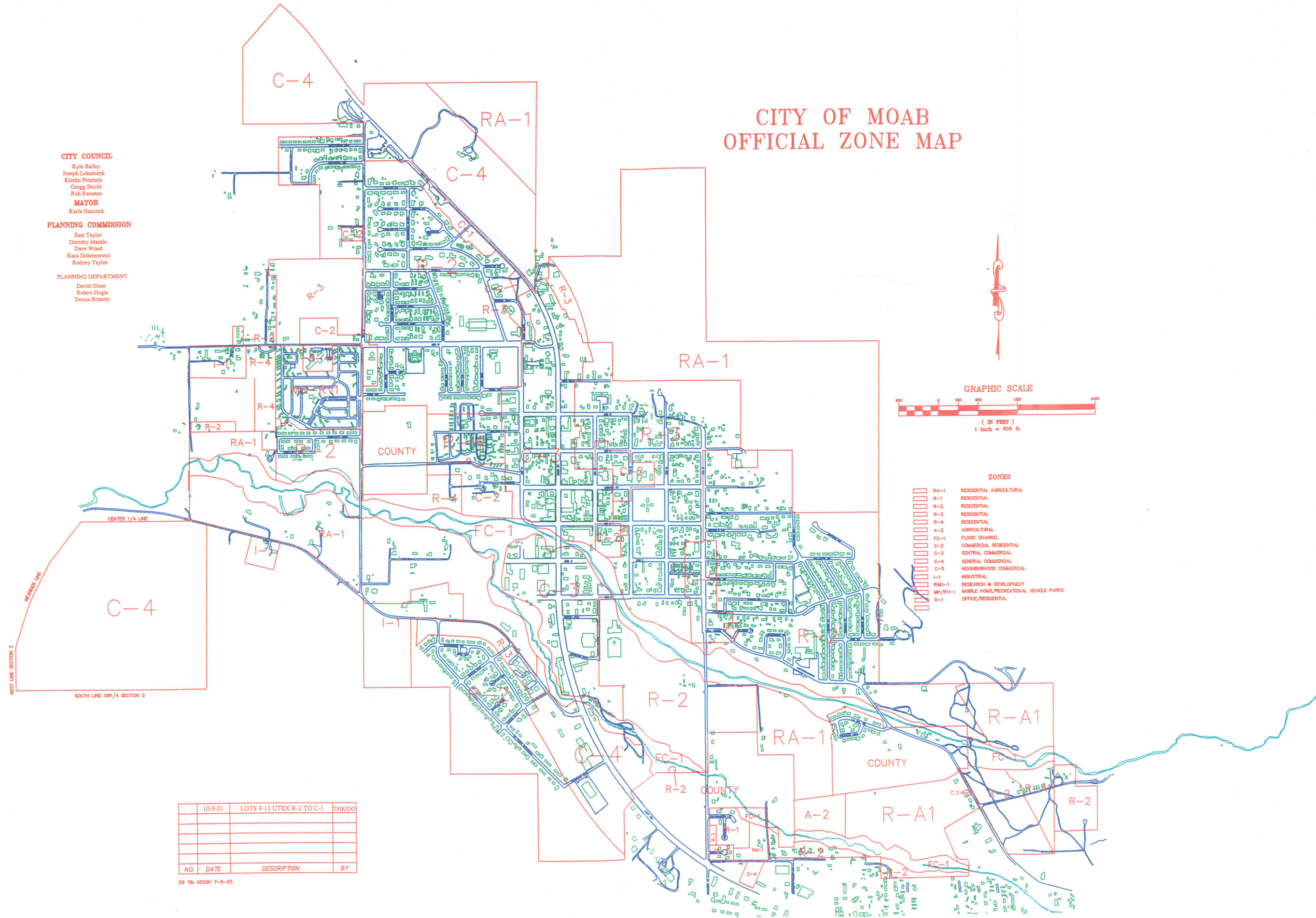
Moab ranks 62<sup>nd</sup> for population in the State of Utah, out of 235 incorporated cities and towns. Historical growth rates have been identified for this study, because past growth is usually a good indicator of what might occur in the future. Figure 4 identifies the population growth over the past 50 years for the State of Utah, Grand County and Moab. Figure 5 identifies that population change in Moab has decreased from a nearly 300% high during the heavy mining years from 1950 to 1960 to a negative growth of 25% from 1980 to 1990. Comparatively, the growth in the State has gained between 18% and 38% each decade during the past 50 years.

CITY OF MOAB  
OFFICIAL ZONE MAP

**CITY COUNCIL**  
Kyle Bailey  
Joseph Lekarczyk  
Kirstin Peterson  
Gregg Stucki  
Rob Sweeten  
**MAYOR**  
Karl Hancock

**PLANNING COMMISSION**  
Sam Taylor  
Dorothy Markle  
Dave Wood  
Kara Dohrenwend  
Rodney Taylor

**PLANNING DEPARTMENT**  
David Olson  
Robert Hagie  
Teresa Roberts



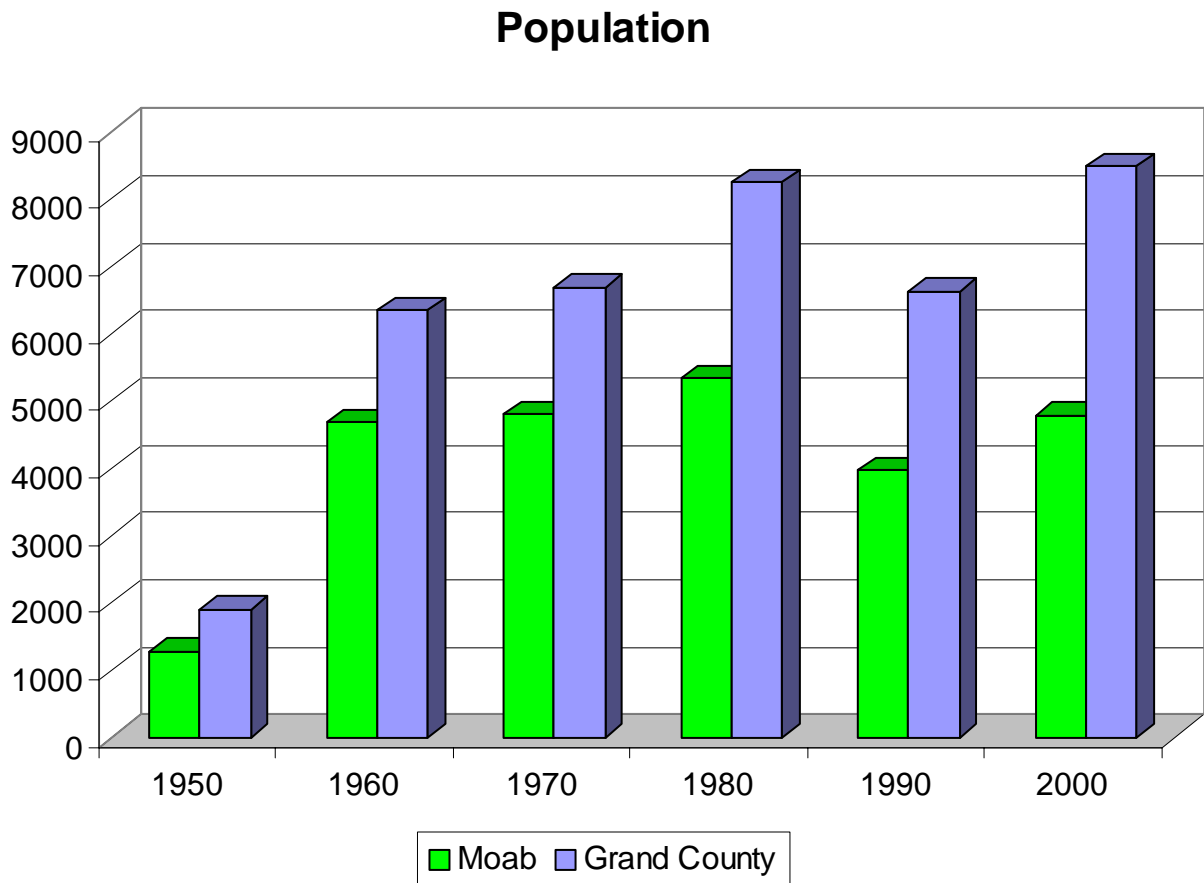
- ZONES**
- RA-1 RESIDENTIAL AGRICULTURAL
  - R-1 RESIDENTIAL
  - R-2 RESIDENTIAL
  - R-3 RESIDENTIAL
  - R-4 RESIDENTIAL
  - A-2 AGRICULTURAL
  - FC-1 FLOOD CHANNEL
  - C-2 COMMERCIAL RESIDENTIAL
  - C-3 CENTRAL COMMERCIAL
  - C-4 GENERAL COMMERCIAL
  - I-1 INDUSTRIAL
  - RAO-1 RESEARCH & DEVELOPMENT
  - WH/RV-1 WORK HOME/RECREATIONAL VEHICLE PARKS
  - O-1 OFFICE/RESIDENTIAL

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NO.	DATE	DESCRIPTION	BY



Figure 4. Population Data

Year	Population		
	Utah	Grand County	Moab
1950	688,862	1,903	1,274
1960	890,627	6,345	4,682
1970	1,059,273	6,688	4,793
1980	1,461,037	8,241	5,333
1990	1,722,850	6,620	3,971
2000	2,233,169	8,485	4,779

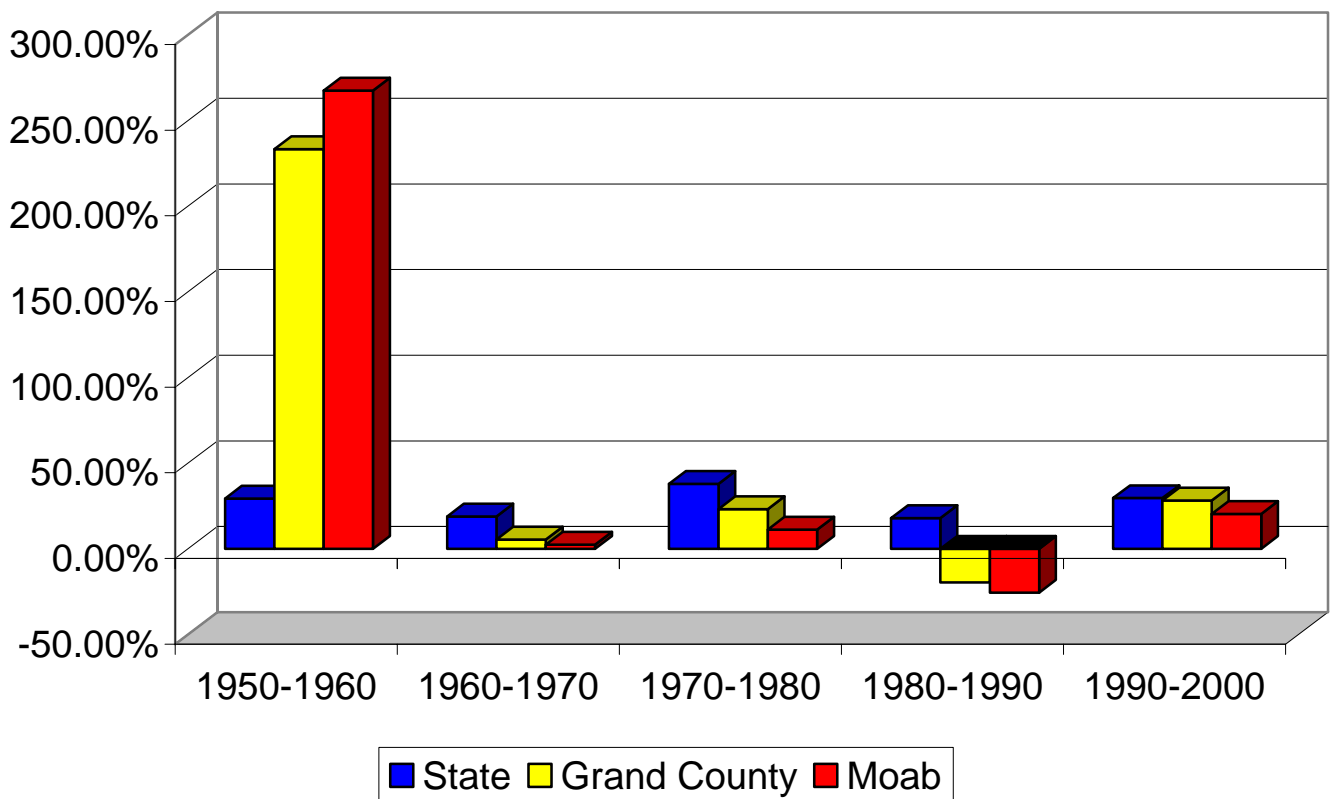


Source: U.S. Bureau of the Census  
<http://www.governor.utah.gov/dea/OtherPublications.html>

Figure 5. Population Change Data

Decade	State of Utah	Grand County	Moab
1950-1960	23.3%	233.42%	267.50%
1960-1970	18.9%	5.41%	2.37%
1970-1980	37.9%	23.22%	11.27%
1980-1990	17.9%	-19.67%	-25.54%
1990-2000	29.6%	28.17%	20.35%

## Decenial Population Change

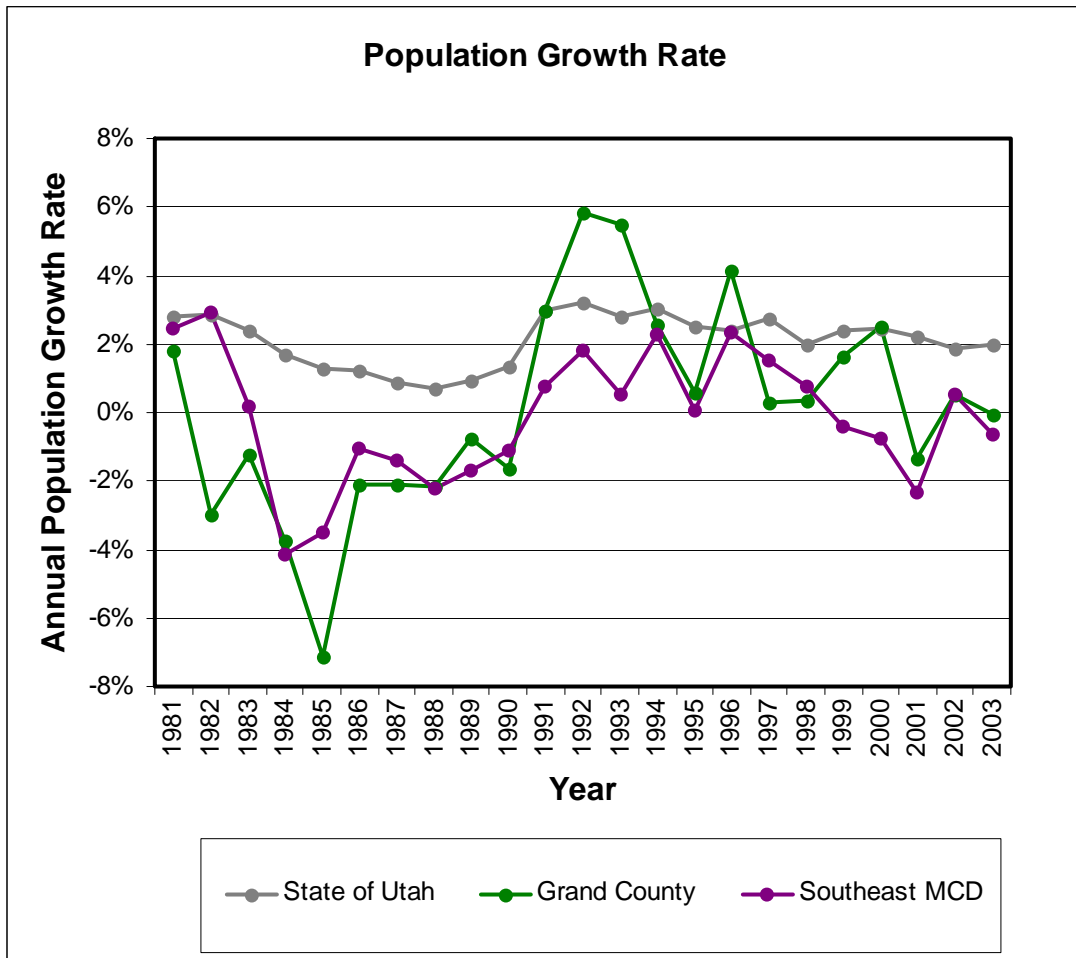


Source Data: U.S. Bureau of the Census

<http://www.governor.utah./dea/OtherPublications.html>

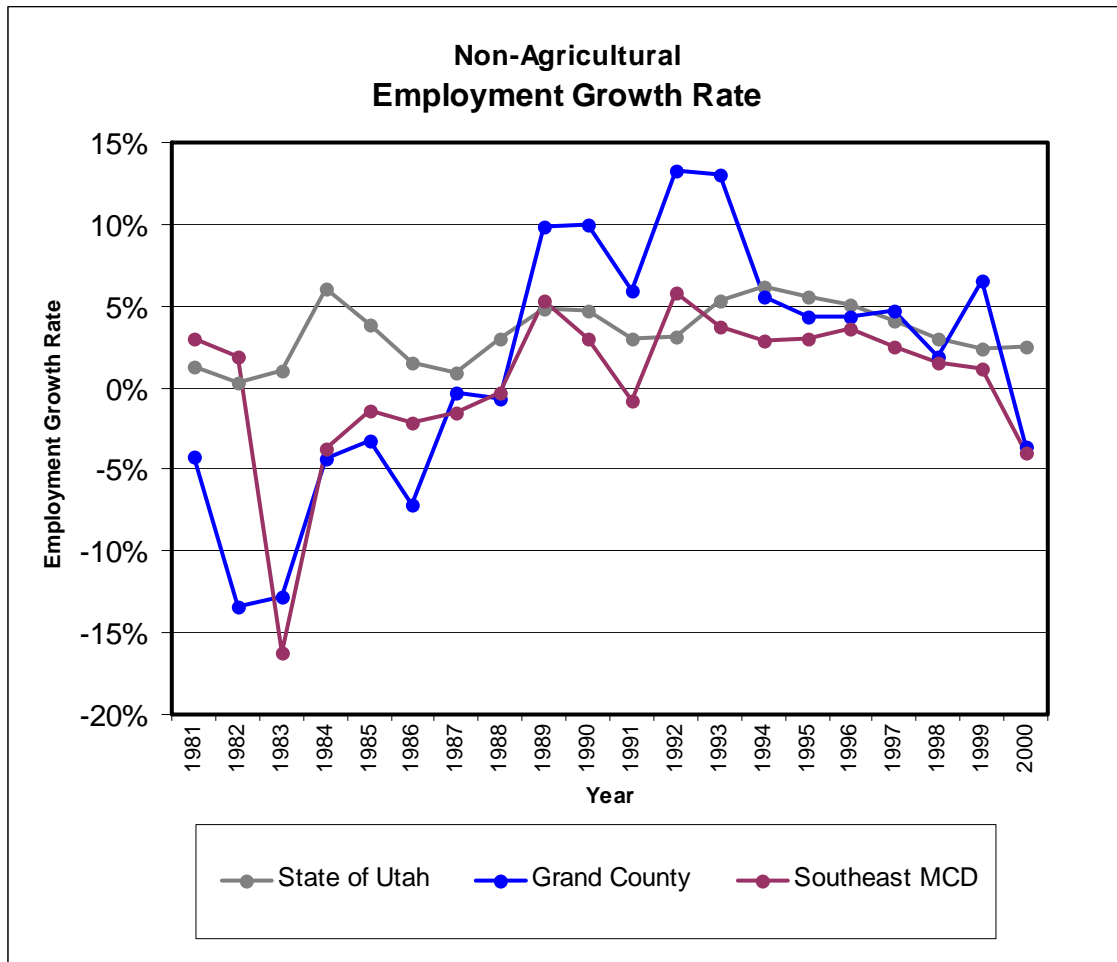


Figure 6. Population Growth Rate (1980-2000)



Source: Governors Office of Planning and Budget  
<http://www.governor.utah.gov/dea>

Figure 7. Employment Growth Rate (1980-2000)



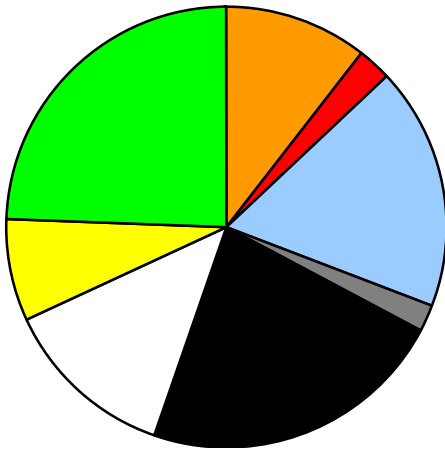
Source: Governors Office of Planning and Budget  
<http://www.governor.utah.gov/dea>



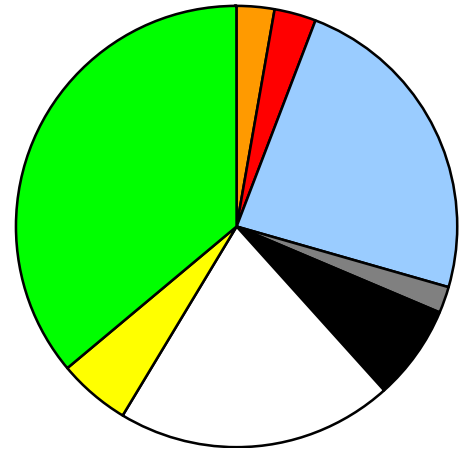
Figure 8. Employment Sectors (1980-2000)

Sector	1980	1990	2000	$\Delta\%$ 1980-2000
Construction	8.59%	2.12%	6.46%	4.35%
FIRE	2.19%	2.15%	1.90%	20.45%
Government	14.44%	17.06%	14.72%	41.55%
Manufacturing	1.74%	1.55%	1.00%	-20.00%
Mining	18.33%	5.01%	1.20%	-90.90%
Services	10.38%	14.70%	21.19%	183.45%
TCPU	6.13%	3.73%	2.12%	-52.03%
Trade	20.14%	26.30%	27.18%	87.39%

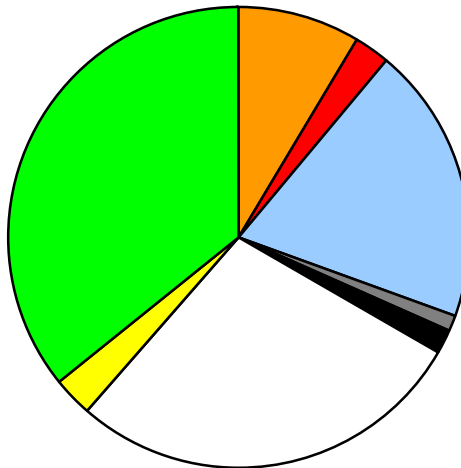
1980 Employment Sectors



1990 Employment Sectors



2000 Employment Sectors



Source: Governors Office of Planning and Budget  
<http://www.governor.utah.gov/dea/HistoricalData.html>

Figure 6 identifies yearly population growth rates for the State of Utah, Grand County, and the Southeast Multi-County District.

Moab shows a slightly older population demographic when compared with the State. In the 25 to 54-age category, the State is at 38.6%, the County is at 43.4% and the City is at 42.0%. For the 65+-age category, the State is at 8.5%, the County is at 12.6% and the City is at 13.6%. The State's median age is 27.1 years, the County's median age is 36.9 years, and City's median age is 35.5 years. The race demographics show a trend that is different from the state as well. The State has a smaller Non-Hispanic White population percentage, 85.3%, compared to the County at 92.6%, and to Moab at 90.4%. Grand County is more typical of the more rural parts of the State, which tends to have a smaller minority population. Another interesting statistic is that of Veteran status with State at 10.7%, County at 14.0%, and Moab at 14.6%.

The 2000 median household income in Moab is \$32,620, compared to the State median household income of \$45,726.

The unemployment rate in Moab was 6.2 percent in 2000. In 2000 there were approximately 2,332 employed people in Moab or 62.9% of the population of Moab. In 2000 there were 4,097 employed people in Grand County or 62.7% percent of the population.

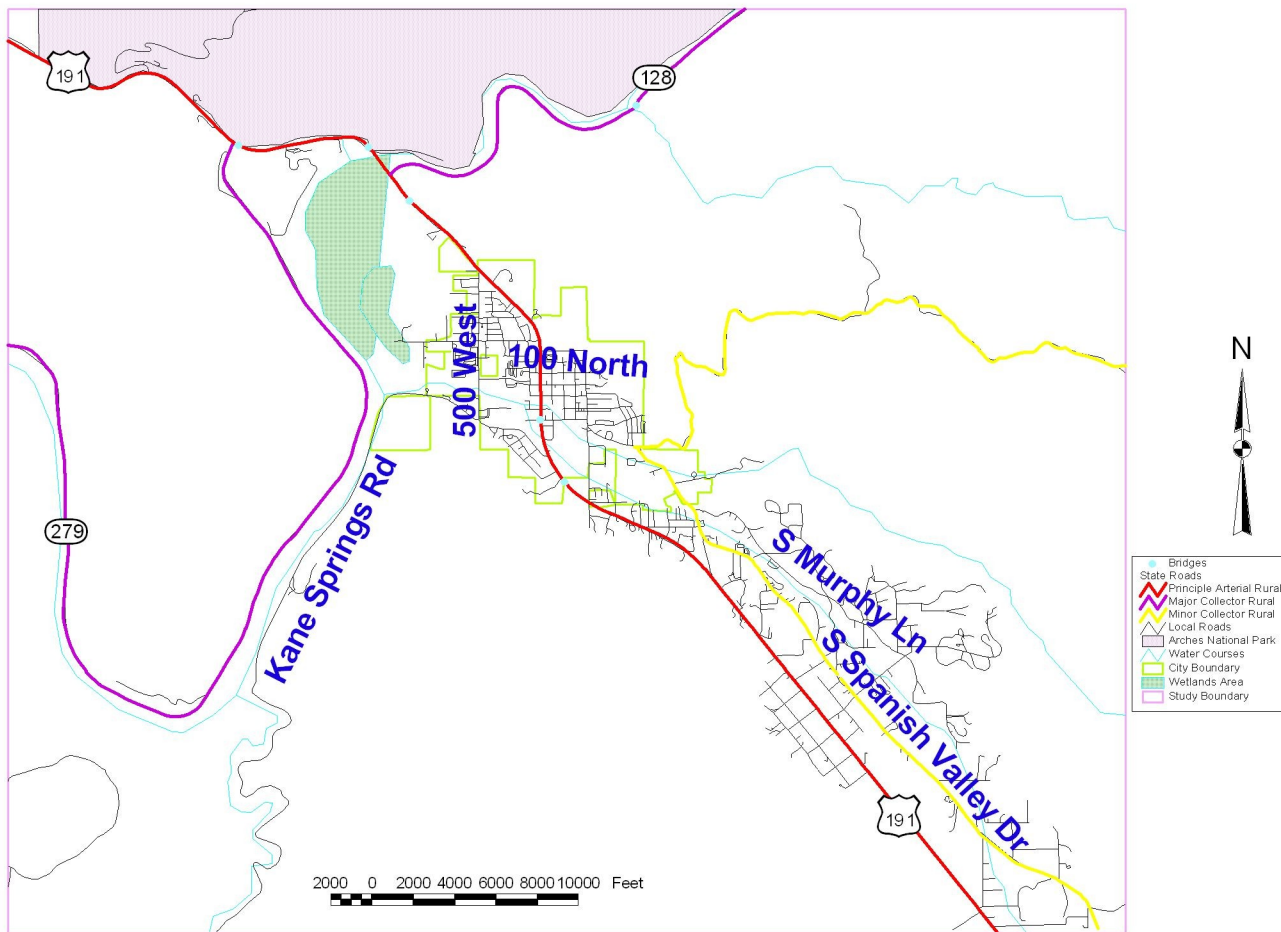
The majority of employees in Grand County work in three primary employment sectors: Trade, Service, and Government as shown in Figure 8. In the county, these three sectors make up 63.09% of the labor force.

## **2.4 Functional Street Classification**

This document identifies the current function and operational characteristics of the selected roadway network of Moab. Functional street classification is a subjective means to identify how a roadway functions and operates when a combination of the roadway's characteristics are evaluated. These characteristics include; roadway configuration, right-of-way, traffic volume, carrying capacity, property access, speed limit, roadway spacing, and length of trips using the roadway.

The six primary classifications were used in classifying selected roadways are: Interstate, Principle Arterial, Minor Arterial, Major Collector, Minor Collector and Local. An Interstate's function is to provide traffic mobility at higher speeds with limited access to adjacent properties. Arterials also provide a higher degree of traffic mobility with limited property access. Traffic from the local roads is gathered on to the Collector system, which provides a balance between mobility and property access trips. Local streets and roads serve property access based trips and these trips are generally shorter in length. Figure 9 illustrates the functional classifications for Moab roadways.





There is one principle arterial and two minor arterials in the study area. The principle arterial that runs through the entire study area is US-191. As previously stated, US-191 carries the majority of the local traffic in Moab.

## 2.5 Bridges

There are several bridges in the study area. UDOT is currently conducting the Colorado River Bridge Study, which is a planning level analysis of the existing and future conditions of the US-191 bridge north of Moab. HDR Consultants and the Interplan Company are performing this study. The purpose of this study is to identify the needs and environmental impacts of the section of US-191 from the end of the current widening project in Moab Canyon (about Potash Road-Arches Entrance) to 500 North in Moab. This planning study will lead into a NEPA study, which will analyze impacts with more detail before a final recommendation is made to the Federal Highway Administration. This study is in progress and at this time there are no reports from the analysis to include in this document.

Figure 10 illustrates the bridge locations for Moab roadways.

## 2.6 Traffic Data

Recent average daily traffic count data were obtained from UDOT. Table 1 shows the traffic count data on the key roadways of the study area. The number of vehicles in both directions that pass over a given segment of roadway in a 24-hour period is referred to as the average annual daily traffic (AADT) for that segment.

Table 1. Average Annual Daily Traffic

Road	Segment	Year	AADT
US-191	South of Moab	2002	8,835
US-191	Downtown Moab	2002	16,700
US-191	North of Moab	2002	6,179
US-191	South of Arches Entrance/SR 279(Potash Road)	2002	5,745
US-191	North of Arches Entrance/SR 279(Potash Road)	2002	2,975
SR-128	East of US-191	2002	690
SR-279	West of US-191	2002	200

*Source: Utah Department of Transportation*

*\*INCL=Incorporated City Limits*

These are averages for the entire year. Moab experiences a significant decrease in traffic during the winter months. UDOT maintains 86 continuously operated automatic traffic recorders (ATR) throughout the state highway system. ATRs collect data continuously throughout the year in order to determine monthly, weekly, daily, and hourly traffic patterns. An ATR is located South of the Arches Entrance on US-191. The following points summarize the 2002/2003 data from the ATR at this location.



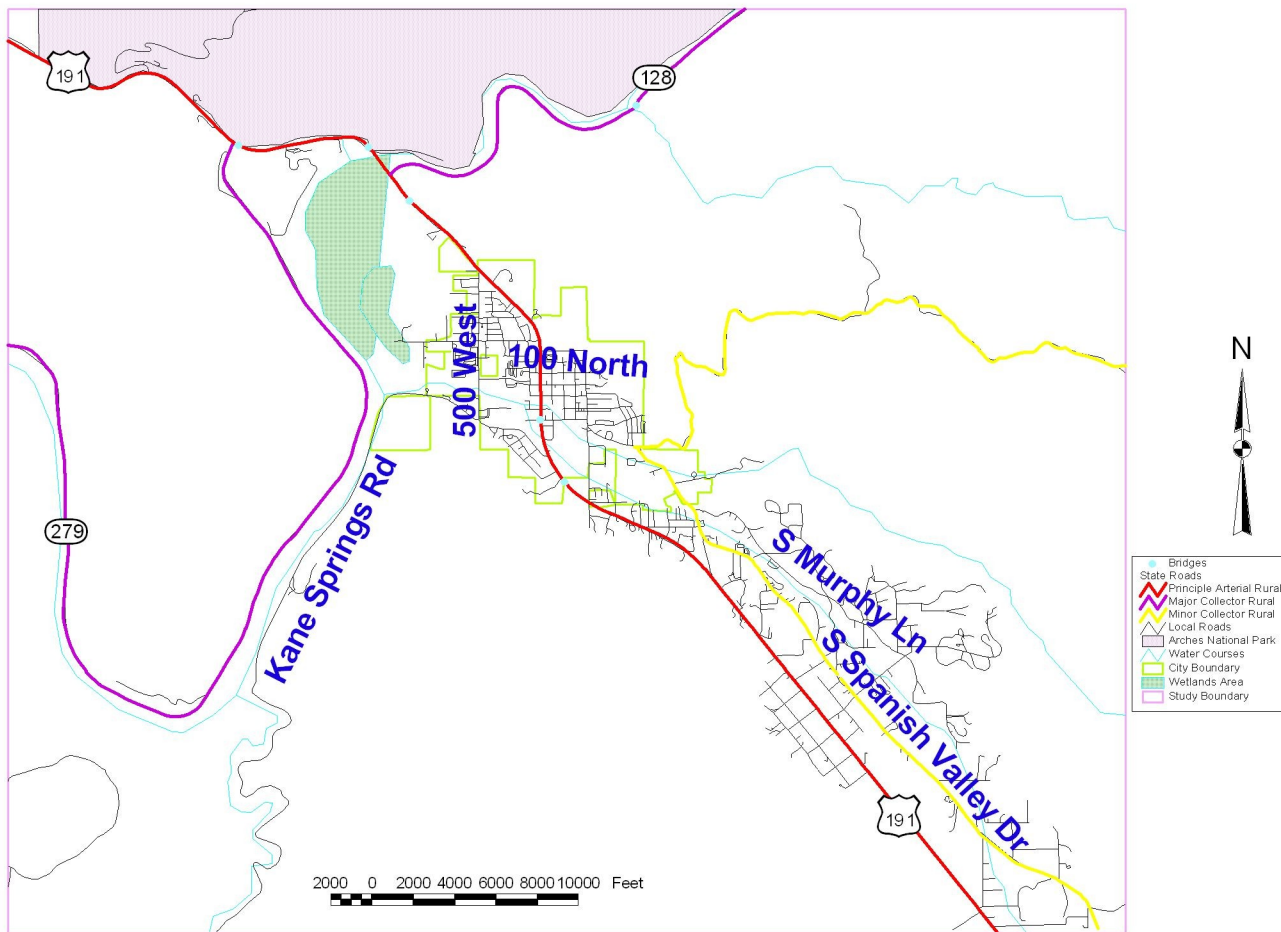
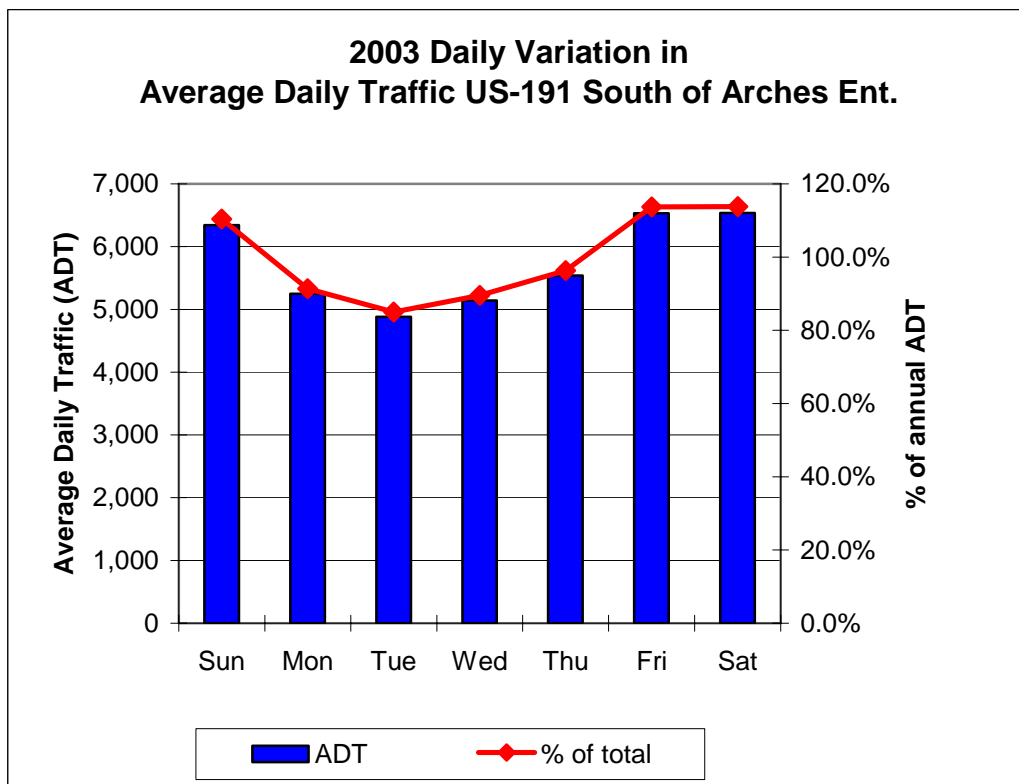
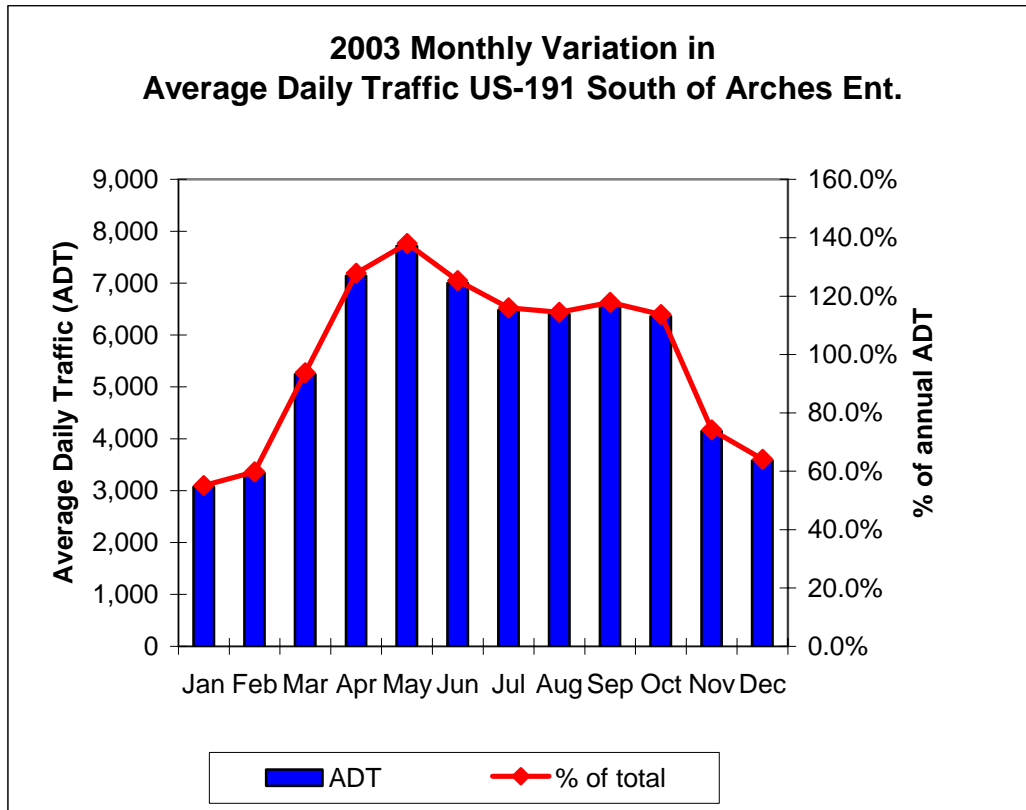
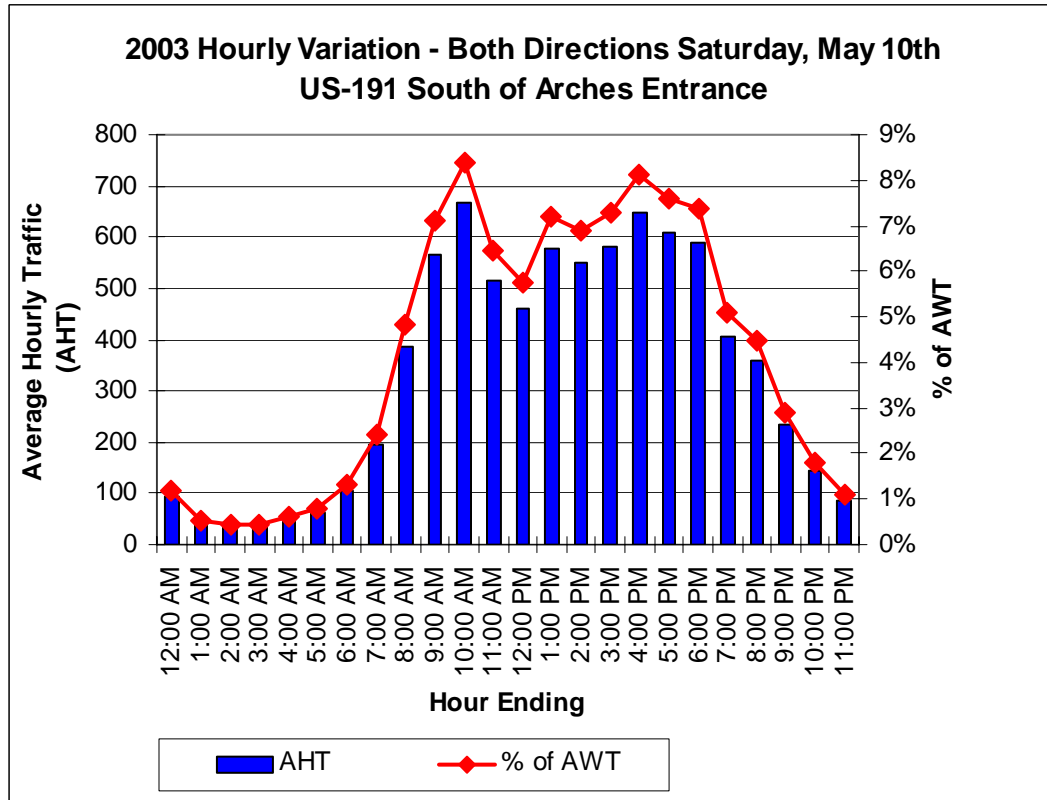
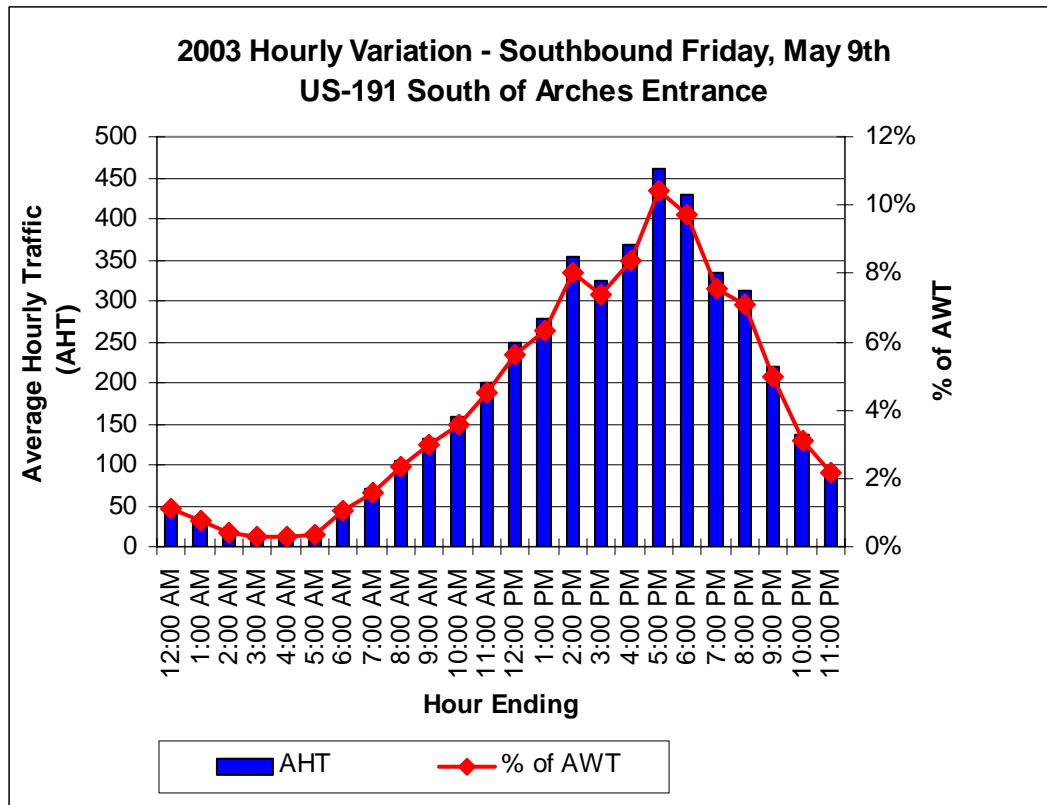


Figure 10 Monthly and Daily ADT on US-191



Source: Utah Department of Transportation

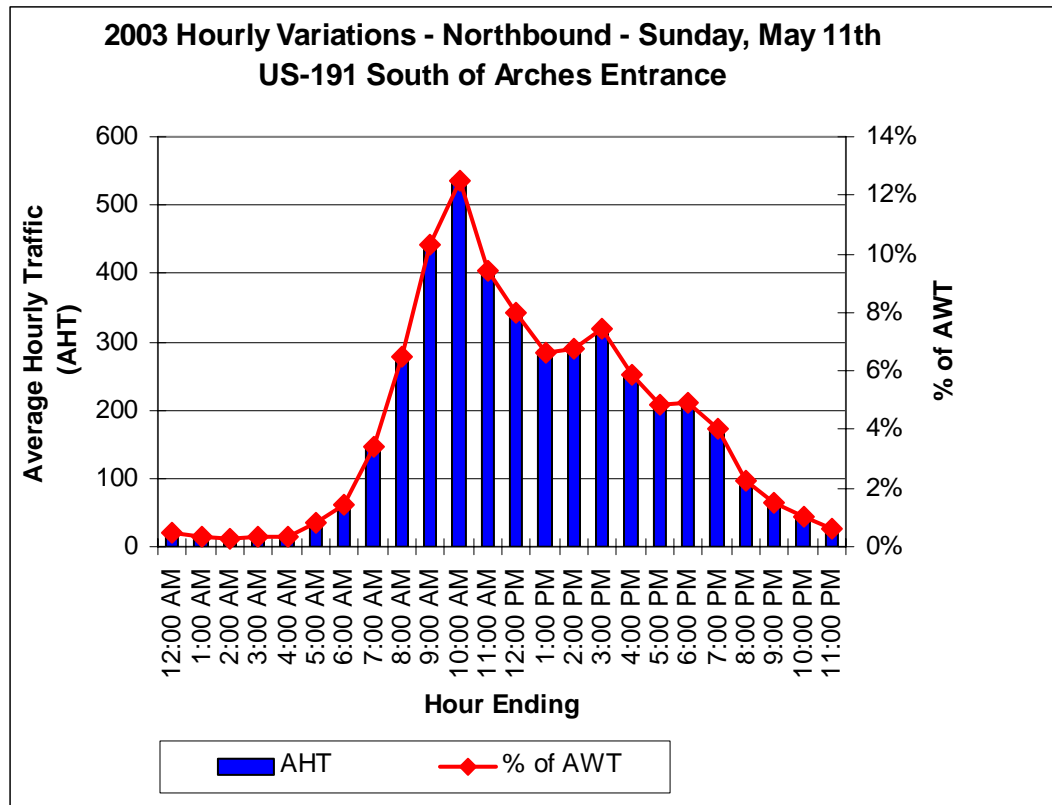
Figure 11 Hourly Variation on US-191



Source: Utah Department of Transportation



Figure 11(continued) Hourly Variation on US-191



Traffic on US-191, South of Arches Entrance/SR 279:

- May was the highest volume month, 38% higher than the average
- January was the lowest volume month, 45% lower than the average
- The highest daily volumes occurred on Friday & Saturday, 15% higher than average
- The lowest daily volumes occurred on Tuesday, 15% lower than the average

The peak months of April, May, and June are consistent with a spring/summer recreational usage. Similarly, the highest days of the week coincide with the influx of recreational trips.

The hourly traffic for US-191 indicates that 5:00 pm on Friday afternoon is the highest peak period into Moab and that 10:00 a.m. Sunday morning is the highest peak period out of Moab. This again gives stronger evidence that the roads are less commuter routes and more recreational routes.

A map illustrating existing and future traffic, peak season traffic, and roadway capacities is presented in the Traffic Forecast section 3.2

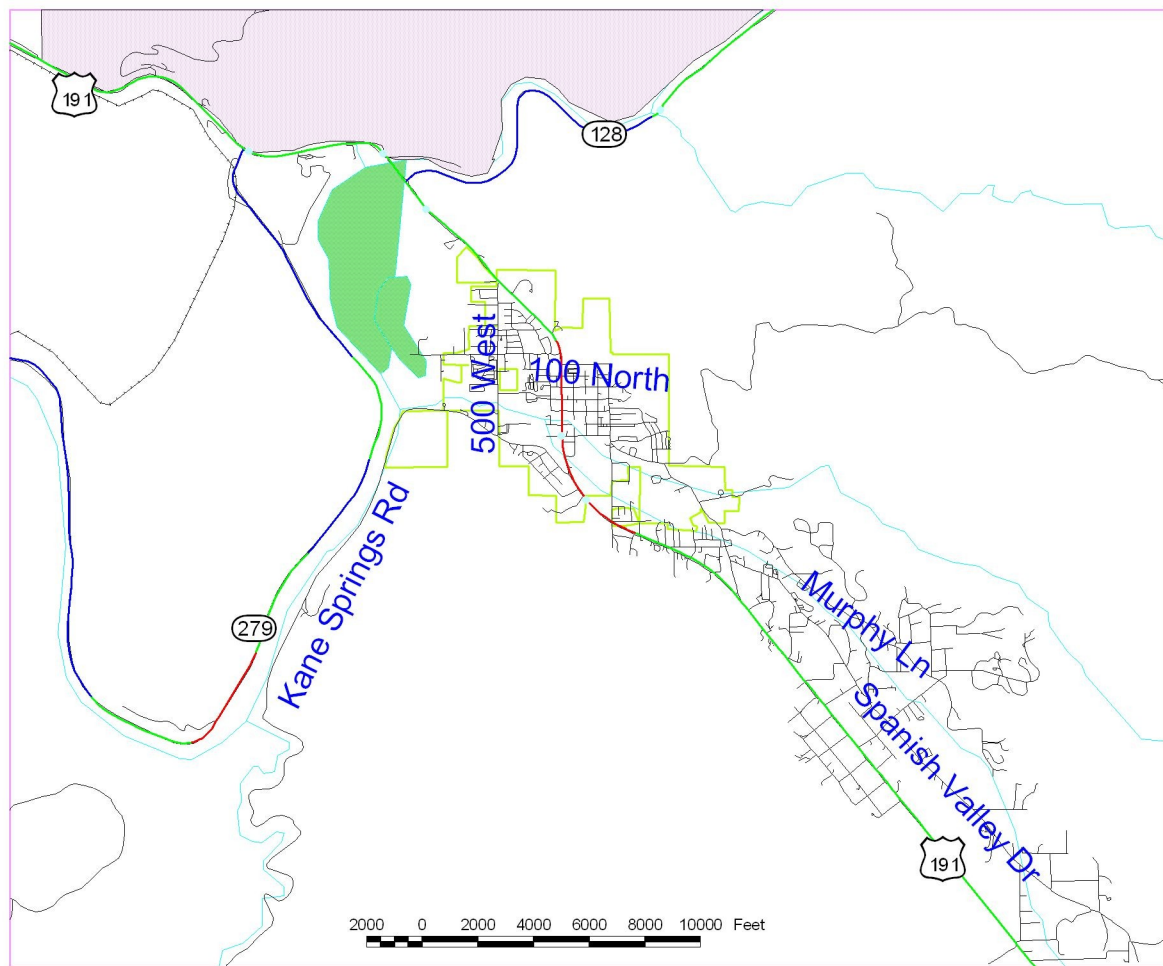
## 2.7 Accident Data

Traffic accident data was obtained from UDOT's database of reported accidents from 2002. Table 2 summarizes the accident statistics for those segments for the year 2002. Additional information includes the average daily traffic, the number of reported accidents, and the accident rates. The roadway segment accident rates were determined in terms of accidents per million vehicle miles traveled. The crash rates for each roadway segment are compared to the expected crash rate for similar facilities across the state.



The results show that SR-128 – milepost 0 to 4.97 has a higher actual crash rate than what is expected for that type of facility and location. These accidents are most likely due to the conflicts with vehicles driving along a winding road at excessive speeds. US-191 – milepost 119.44 to 125.26 has a lower than expected actual crash rate than what is expected for that type of facility and location. US-191 – milepost 125.27 to 127.43 has a higher actual crash rate than what is expected for that type of facility and location. The higher accident rate is attributed to turning in and out of the businesses and

local roads along the corridor. The remaining segments of US-191 - milepost 127.44 to 134 are lower than normal. The section of SR-279 - milepost 3.98 to 15.29 is at the expected accident rate. Figure 11 illustrates the high accident for Moab roadways.



- Bridges
- State Roads
  - At or Less Than Expected
  - Greater Than Expected
  - Much Greater Than Expected
- Local Roads
- Railroad
- Arches National Park
- City Boundary
- Water Courses
- Wetlands Area
- Study Boundary



Table 2. Accident Data 2002

Road	From Milepost	End Milepost	ADT (2002)	# Crashes (2002)	Accident Rate	
					Actual	Expected*
SR-128	0	4.97	690	5	3.68	2.53
US-191	119.44	125.26	8,835	8	0.43	1.96
US-191	125.27	127.43	16,700	38	2.95	1.85
US-191	127.44	128.62	6,179	2	0.77	1.96
US-191	128.63	131.27	5,745	5	0.92	1.96
US-191	131.28	134	2,975	3	0.96	1.65
SR-279	3.98	15.29	200	4	2.51	2.53

\* Statewide average accident rates for functional class and volume group.

## 2.8 Bicycle and Pedestrian

The Federal Highway Administration recognizes the increasingly important role of bicycling and walking in creating a balanced, intermodal transportation system, and encourages state and local governments to incorporate all necessary provisions to accommodate bicycle and pedestrian traffic. Moab City has been proactively implementing these types of bicycle/pedestrian-friendly strategies. Located in the heart of red rock country near the Colorado River, with hundreds of thousands of mountain bikers taking to the hills each year, Moab has become the destination of choice for bicycle enthusiasts. The City has been diligent in creating biking and trail facilities, as is evidenced through their work with the Trail Mix Committee, community groups and other public agencies in developing detailed trails' maps. In addition to recreational pedestrian travel, Moab has a significant number of commuters that bike and walk to work. These activities, and others noted in Moab City's General Plan, seem to embrace a "complete the street" philosophy that encourages advancement of a system for both motorized and non-motorized travel.

**Biking/Trails** – Located in close proximity to some of Utah's most scenic areas and many National Parks, Moab City is frequented by cyclists, both local residents and tourists, at all levels of experience. From the novice to the advanced, from the mountain biker to the on-street cyclist, there are opportunities and facilities that will work in any circumstance.

A sampling of these facilities include the recently completed Mill Creek Parkway trail, which is a two mile, non-motorized trail along Mill Creek that provides access to wetland and historic farm sites, as well as business and activity centers. Enhancement funds were used to complete this project, and as additional funds become available, the Mill Creek Parkway trail will be expanded. Another Enhancement funded project, the Mill Creek Underpass and Path, consists of a 10-foot concrete bike trail at Mill Creek and US-191. Moab City is also currently working with UDOT is designing and constructing a pedestrian/bicycle bridge across the Colorado River, connecting to Lions Park.

One of the most well known trails in Moab is the Slickrock Bike Trail. The 9.6 mile trail presents both a challenging ride and beautiful scenery. Originally designed for motorcycle use, the trail is now open for both motor and pedal bikes, however novice cyclists are discouraged from

attempting this trail. Other area trails include the Monitor and Merrimac Trail; Gemini Bridges Trail; and the Hurrah Pass Trail. The City has identified trails for all user types, such as hikers, bikers, equestrian, or shared-path.

**Pedestrian** – The City’s General Plan acknowledges the need to provide a pleasant, safe, efficient and complete pedestrian transportation network for daily circulation, activities and recreation. Providing sidewalks with sufficient width that are clear of obstructions is the City’s goal. Encouraging a more pedestrian-oriented business district and making the City “access friendly” for people with disabilities is also noted.

Through the federal-aid Enhancement program, Moab City had the opportunity to install sidewalk on the west side of US-191. There are other areas within the City where sidewalk improvements are needed that would then provide a connection into town. Safe pedestrian crossings are also a concern of the community and should be addressed during the current main street reconstruction project.

## **2.9 Public Transportation**

Moab does not have a fixed route city bus system. Chapter four lists a transit system throughout Moab as a potential future project. There is an on-going study by the National Parks Service to determine the need and feasibility of a shuttle service during peak tourism season at Arches National Park. This shuttle would operate from a parking area just off U.S. 191 at the entrance to the Park north of the Colorado River bridge at Moab. In a separate operation, a free downtown shuttle running the length of the Moab business district on U.S. 191 is seen as a possible way to address the high traffic numbers along Main Street in the downtown area.

If Moab wanted to pursue fixed route transit service, the Utah State Enabling Act allows for cities or counties to organize transit districts. Once a transit district has been established the city or county can attempt to secure funding to provide transit service or they can vote to be annexed by close transit authority if one exists.

The Moab area is served by the National Railroad Passenger Corporation (Amtrak) via a stop in Green River, Utah, which is 54 miles northwest of Moab. Amtrak’s “California Zephyr” provides daily service to Green River on its scenic transcontinental run to and from Chicago and the San Francisco Bay Area via Omaha, Denver, Salt Lake City, and Reno. There is no Amtrak station, waiting room or ticket agent in Green River, only a platform adjacent to the former Rio Grande Depot, which is now owned by Union Pacific, located at the south end of downtown.

There is no intercity bus service on U.S. 191 serving Moab with the nearest such service found in Green River. Greyhound Lines serves Green River with four daily bus schedules in each direction en route to and from Los Angeles and New York City via Las Vegas, Salt Lake City, Denver, Omaha, and Chicago. The Greyhound Bus stop is located at the Rodeway Inn/Westwinds Truck Stop at the east end of downtown Green River.

No public transportation is available between Green River and Moab, and no rental car services are available in Green River. Certain tour companies located in Moab will provide pick-up service for clients arriving or departing aboard Amtrak in Green River. Amtrak’s only reason for

stopping in Green River is to serve Moab, therefore, Moab and Green River need to investigate establishing a public transportation connection to link both Amtrak and Greyhound with Moab, which is the primary tourist destination in southeastern Utah.

## **2.10 Freight**

Moab is located on U.S. Highway 191 about 30 miles south of Crescent Junction on Interstate Highway 70. This busy truck route is a strategic link in the Canamex highway freight corridor handling North American Free Trade Agreement (NAFTA) commerce to and from the industrial regions of northeastern Mexico, Texas and the Gulf Coast, and the Pacific Northwest and Canada, via the warehousing and distribution facilities along Utah's Wasatch Front. As such, recent increases in truck traffic through Moab are of increasing concern to citizens and city government. Concern over truck traffic in the busy downtown area, along with issues related to the transportation of hazardous materials through the community, has repeatedly raised the issue of a bypass route around Moab. (See Chapter 4 for further information on the Moab Bypass issue.)

Although railroad service does not come into Moab city proper, the Union Pacific Railroad operates a branch line that is located just across the Colorado River from the community. Completed in 1961 by the Denver & Rio Grande Western Railroad, the Cane Creek Branch was built to serve the Texasgulf Potash Mine located 16 miles downstream from Moab along the Colorado River. A part of the Union Pacific system since 1996, this line continues to serve the same facility, which is today owned by Moab Salt Inc. The line joins UP's secondary mainline between Salt Lake City and Denver at Crescent Junction, and is served by a weekly freight train originating out of the UP freight yard in Grand Junction, Colorado every Friday.

Freight traffic through Moab on U.S. 191 averages about 80 trucks per hour during the main part of the day, dropping to about 50 trucks per hour during the late night hours. The largest freight shipper in the Moab area, Moab Salt ships salt and potash by both truck and rail to destinations all across the western and Midwestern United States. A total of 245,000

tons of freight was shipped from Moab Salt in 2002 with the following breakdown: by rail 25,000 tons of Potash and 55,000 tons of Salt, all shipped in 100-ton capacity covered hopper cars. Truck freight accounted for 80,000 tons of Potash and 85,000 tons of salt, all shipped in trucks with an average carrying capacity of 25 tons. These tonnages equate to a total of 800 rail cars and 6600 trucks leaving the Moab Salt facility each year, of which only a small percentage of from one to five trucks per day actually passes through Moab itself. Most trucks originating at





this facility travel north to I-70 and thus do not contribute to the traffic issues in downtown Moab.

## **2.11 Aviation Facilities & Operations**

At an elevation of 4553 feet above sea level, the Moab Airport, known as Canyonlands Field, is located just west of U.S. Highway 191 17 miles north of Moab. The airport is equipped with a single runway, #3/21 which is asphalt paved running north/south 7100 feet in length and 75 feet in width with a parallel paved taxiway. Runway 3/21 is equipped with pilot-controlled lighting, in addition to the airport's airways beacon which is illuminated from dusk to dawn.

Although lacking a Control Tower, Canyonlands Field is equipped with a UNICOM communications system linking pilots with the airport's Fixed Base Operator (FBO) Redtail Aviation. ASOS Automated Surface Observation System provides pilots with local weather information, and the airport is equipped with a VHS Omnidirectional Range (VOR) non-precision approach system.

Canyonlands Field is a full service airport with a passenger terminal served by Idaho-based Salmon Air providing twice daily commercial air service to and from Salt Lake City. Air charter service, scenic flights over the region's many attractions, car rental and aircraft rental services are all available at Canyonlands Field. Aircraft maintenance, aircraft parking tie-downs and a pilot's lounge are also available. Air Cargo parcel service is provided by United Parcel Service which also flies twice daily between Moab and the UPS regional hub at Salt Lake City International Airport.

Future plans for Canyonlands Field include a crosswind runway for which no target date for construction has been determined. An additional need is the lengthening and strengthening of Runway 3/21 which would allow Canyonlands Field to handle the full range of business and executive jet aircraft used by the increasing number of upscale tourists visiting the Moab area from across the nation. A minimum length of 8100 feet, a width of 100 feet, and additional pavement thickness is needed for these aircraft. In addition, the existing VOR non-precision approach system is inadequate for these large and fast aircraft, which need a full Instrument Landing System (ILS).

Access to and from Moab and the region's National Parks is provided by U.S. Highway 191, which passes adjacent to Canyonlands Field. Given the speed and traffic levels on this busy highway, both turn lanes and deceleration lanes are inadequate, creating a serious safety concern for airport management and those accessing the facility, particularly coming north from Moab to Canyonlands Field.

## **2.12 Revenue**

Maintenance of the existing transportation facilities and construction of new facilities come primarily from revenue sources that include the Moab general fund, federal funds, transportation impact fees and State Class C funds.

Financing for local transportation projects consists of a combination of federal, state, and local revenues. However, this total is not entirely available for transportation improvement projects, since annual operating and maintenance costs must be deducted from the total revenue. In addition, the City is limited in their ability to subsidize the transportation budget from general fund revenues.

### **2.12.1 State Class B and C Program**

The distribution of Class B and C Program monies is established by state legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Seventy-five percent of the funds derived from the taxes and fees are kept by the Utah Department of Transportation for their construction and maintenance programs. The remaining twenty-five percent is made available to counties and cities.

Class B and C funds are allocated to each city and county by a formula based on population, road mileage, and land area. Class B funds are given to counties, and Class C funds are given to cities and towns. The table below identifies the method used to allocated B and C funds.

Apportionment Method of Class B and C Funds

Based on	Of
50%	Roadway Mileage
50%	Total Population

Class B and C funds can be used for maintenance and construction of highways, however thirty percent of the funds must be used for construction or maintenance projects that exceed \$40,000. Class B and C funds can also be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.

Moab receives about \$180,000 annually from the B&C fund allocation.

### **2.12.2 Federal Funds**

There are federal monies that are available to cities and counties through the federal-aid program. The funds are administered by the Utah Department of Transportation. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP).

The Surface Transportation Program (STP) provides funding for any road that is functionally classified as a collector street or higher. STP funds can be used for a range of projects including rehabilitation and new construction. The Joint Highway Committee programs a portion of the STP funds for projects around the State for urban areas. A portion of the STP funds can be used in any area of the State, at the discretion of the State Transportation Commission.

Transportation Enhancement funds are allocated based on a competitive application process. The Transportation Enhancement Committee reviews the applications and then a portion of those are passed to the State Transportation Commission. Transportation enhancements include 12 categories ranging from historic preservation, bicycle and pedestrian facilities, and water runoff mitigation. Other funds that are available are State Trails Funds.

The amount of money available for projects specifically in the study area varies each year depending on the planned projects in UDOT's Region Four. As a result, federal aid program monies are not listed as part of the study area's transportation revenue.

### **2.12.3 Local Funds**

Moab, like most cities, has utilized general fund revenues in its transportation program. Moab is the only City within Utah that does not collect property tax revenue. With the lack of this funding stream Moab will need to pursue alternative funding to pay for many of these improvements. Other options available to improve the City's transportation facilities could involve some type of bonding arrangement, either through the creation of a redevelopment district or a special improvement district. These districts are organized for the purpose of funding a single, specific project that benefits and identifiable group of properties. Another source is through general obligation bonding arrangements for projects felt to be beneficial to the entire entity issuing the bonds.

### **2.12.4 Private Sources**

Private interests often provide sources of funding for transportation improvements. Developers construct the local streets within the subdivisions and often dedicate right-of-way and participate in the construction of collector or arterial streets adjacent to their developments. Developers can also be considered as a possible source of funds for projects because of the impacts of the development, such as the need for traffic signals or street widening.





### **3. Future Conditions**

#### **3.1 Land Use and Growth**

Moab's Transportation Master Plan must be responsive to current and future needs of the area. The area's growth must be estimated and incorporated into the evaluation and analysis of future transportation needs. This is done by:

- Forecasting future population, employment, and land use;
- Projecting traffic demand;
- Forecasting roadway travel volumes;
- Evaluating transportation system impacts;
- Documenting transportation system needs; and
- Identifying improvements to meet those needs.

This chapter summarizes the population, employment, and land use projections developed for the project study area. Future traffic volumes for the major roadway segments are based on projections utilizing 20 years of traffic count history. The forecasted traffic data are then used to identify future deficiencies in the transportation system.

##### **3.1.1 Population and Employment Forecasts**

The Governor's Office of Planning and Budget develop population and employment projections. The current population and employment levels, as well as the future projections for each are shown for Moab and Grand County in the following table.

Population and Employment

Year	Moab City	Grand County	
	Population	Population	Employment
2000	5,062	8,485	5,577
2030	5,719	10,122	7,168

These projections equate to a growth rate of less than 1%. The Governor's Office bases these projections on an economic model. As discussed later in this chapter, future traffic for Moab should grow at a much higher rate than these population and employment estimates.

### 3.1.2 Future Land Use

The City has an annexation plan that describes where it plans to grow. Several large areas for future development were identified during the course of the Transportation Master Plan development:

- Moab Area Partnership for Seniors (MAPS)
- State Institutional Trust Lands (SITLA) - Southern Corridor
- Mill Creek Drive area

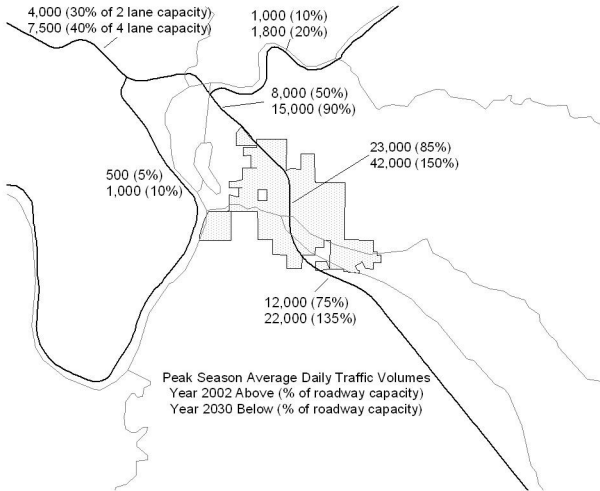
Commercial growth is projected to continue along US-191 as well as other areas of the City. Moab's General Plan has established several policies and specifications to "ensure that the quality, location and type of commercial land use is closely related to the needs and demands of the Moab community".



### 3.2 Traffic Forecast

The previous sections show that the population and employment are estimated to grow at about 0.5% to 1% per year. Since the majority of trips in the Moab area are recreational, traffic should grow at higher rate than the population and employment. Since 1985, traffic volumes on US-191 have increase about 3% per year. If this trend continues, traffic will nearly double over the next 30 years. The map on the following page shows average *peak season* daily traffic for years 2002 and 2030. Also shown is the percentage of the roadway capacity the traffic will reach. A four-lane highway like Main Street (US-191) can carry about 27,000 vehicles a day before it reaches its carrying capacity. The average annual daily traffic on Moab's Main Street should reach this carrying capacity within the next 20 years. Widening Main Street is clearly not a feasible alternative to service the projected traffic demands. As discussed in chapter four, a bypass feasibility study could define the benefits a bypass could provide to relieve traffic congestion. In addition, other alternatives such as encouraging alternative travel modes and improving parallel local roadway facilities should be considered in the next few decades.





## **4 Transportation Improvement Projects**

### **4.1 Current Statewide Transportation Improvement Program (STIP)**

There are five projects listed on the current STIP. These projects are expected to be funded in years 2004 to 2006. (See table below)

<b>Project Name</b>	<b>Project Description</b>	<b>Expected Funding Year</b>	<b>Cost</b>
SR-128; New Spanish Trail	Bike / Pedestrian Path	2004	\$625,000
Colorado River Pedestrian Bridge	Bridge – Enhancement	2004	\$2,250,000
Colorado River Bridge Study	Bridge – Study	2005	\$400,000
US-191; Moab Main Street	Road – Asphalt Rehab.	2005	\$6,000,000
Millcreek Drive – Spanish Drive to Murphy Lane	Road – Asphalt Reconstruction	2006	\$2,372,500

### **4.2 Recommended Projects**

The following table identifies transportation needs for Moab. These needs were identified through a series of meetings where the TAC identified the needs and set priorities for projects. A list of projects and estimated costs are presented on the following page. Some of the projects that are most important to Moab include:

- New signs and more enforcement to reduce speeds on Main Street
- Pedestrian Crossings / Bike Lanes
- Enhancements to Lions Park
- Emergency Vehicle preemption on Moab's Traffic Signals
- Corridor Study to address truck traffic and others issues along Highway 191
- Traffic Calming Medians
- Enhancements to the North Corridor including adequate turning lanes and highway width, beautification and landscaping, bicycle and pedestrian trails, and storm water drainage improvements



Many of these projects are short term priorities that will warrant immediate analysis. Other projects are long term and will require appropriate planning. Other projects and issues include downtown parking, transit system within Moab, additional bike lanes/routes, and new roads for development.

## Moab Area Transportation Needs and Cost Estimates

	Location		Segment Length	Right-of-Way	Project Cost	Total Cost
	New Roads	From	To			
Priorities						
Priority	Moab Area Parnership for Seniors			Per Mile	\$400,000	\$400,000
	SITLA - South Valley			Per Mile	\$400,000	\$400,000
	Mill Creek Drive Area			Per Mile	\$400,000	\$400,000
	East / West through Routes	Misc. Locations		Per Mile	\$400,000	\$400,000
	<b>Roadway Capacity Improvements</b>					
	South 500 West (Asphalt shldr, Curb & Gutter)	400 South	Kane Drive	2500	\$50,000	\$450,000
Priority	By-pass feasibility Study				\$500,000	\$500,000
	<b>Signal Improvements</b>					
	SR-191 / 500 West				\$150,000	\$150,000
	SR-191 / 200 South				\$150,000	\$150,000
	Bicycle Detection (Camera for each leg)				\$90,000	\$90,000
	Countdown Pedestrian Signals / Timing Enhancements				\$20,000	\$20,000
Priority	Emergency Vehicle Preemption				\$50,000	\$50,000
	<b>Safety Projects</b>					
Priority	Speed Limit Signs on Main Street (Trucks)				\$5,000	\$5,000
	Site Distance 400 North / 500 West (Stop Bar, Stop Sign)				\$1,000	\$1,000
	Intersection Improvements 400 North / 100 West	Roundabout			\$150,000	\$150,000
	Signing 500 West / Kane				\$500	\$500
	Site Distance SR-191 / Mivida (Turn Lane)			\$20,000	\$200,000	\$220,000
	Turn Lanes extension into Airport				\$400,000	\$400,000
	Center Street / 100 East (Restripe of Parking)				\$10,000	\$10,000
	<b>Bike / Pedestrian Improvements</b>					
	Storm Drain / Pedestrian Crossing North SR-191				\$300,000	\$300,000
Priority	Misc. Bike Lanes				\$20,000	\$20,000
	Underpass SR191 / Kane Creek				\$500,000	\$500,000
Priority	School Crossing at SR-191 / 400 North				\$2,500	\$2,500
Priority	School Crossing at SR-191 / Uranium				\$2,500	\$2,500
	300 South Sidewalk	Main Street	400 East	2000	\$5,000	\$10,000
	<b>Alternative Travel Modes</b>					
	Park Service Shuttle Service				75000/yr	\$75,000
Priority	Moab Shuttle Service (Public Transportation)				150000/yr	\$150,000
	<b>Enhancements</b>					
	Extension of Main Street Beautification				\$400,000	\$400,000
Priority	Lions Park Beautification				\$200,000	\$200,000
	400 North Restripe	100 West	500 West	2500	\$35,000	\$35,000
	<b>Other</b>					
	Relocate Port of Entry north of Monticello				\$3,000,000	\$3,000,000
	Parking (Additional Downtown lots)				\$260,000	\$260,000
Priority	Enforcement (Additional Officer)				60000/yr	\$60,000
Priority	Traffic Calming Medians			Each	\$10,000	\$10,000
	Traffic Calming Speed Humps			Each	\$5,000	\$10,000

#### **4.2.1 Corridor Study to Address Truck Traffic and Other Issues**

Currently about 900 trucks per day traverse US-191 through downtown Moab. This number should increase annually. As stated in the previous chapter, Main Street (US-191) should reach its roadway capacity during the peak season within the next 10 to 20 years. Since Moab is the destination of many of the travelers on US-191 and the fact that most of the traffic on Main Street are local area trips, a study to address both the long and short term impacts of increased truck traffic would assist in determining the most feasible options of truck traffic management through Moab.

#### **4.2.2 Designation of an Alternate Temporary Emergency Truck Route**

Currently there is only one truck route through Moab (US-191), and should this route be closed due to a catastrophic event or other emergency an Alternate Emergency Truck Route should be designated as 500 West to Kane Creek to US- 191.

### **4.3 Revenue Summary**

#### **4.3.1 Federal and State Participation**

Federal and State participation is important for the success of implementing these projects. UDOT needs to see the Transportation Master Plan so that they understand what the City wants to do with its transportation system.

UDOT can then weigh the priorities of the city against the rest of the state. It is important for Moab to promote projects that can be placed on UDOT's five-year Statewide Transportation Improvement Program (STIP) as soon as possible. Coordination with UDOT's District Engineer, Planning Engineer and Region Director is encouraged.



#### **4.3.2 City Participation**

The City will fund the local Moab projects. The local match component and partnering opportunities vary by the funding source.

### **4.4 Other Potential Funding**

Previous sections of this chapter show significant shortfalls projected for the short-range and long-range programs. The following options may be available to help offset all or part of the anticipated shortfalls:

- Increased transportation impact fees.
- Increased general fund allocation to transportation projects.
- General obligation bonds.
- Increased participation by developers, including cooperative programs and incentives.
- Special improvement districts (SIDs), whereby adjacent property owners are assessed portions of the project cost.
- Sales or other tax increase.
- State funding for improvements on the county roadway system.
- Safe sidewalks program (UDOT Traffic & Safety).
- Enhancements program.
- Increased gas tax, which would have to be approved by the State Legislature.
- Federal-aid available under one of the programs provided in the federal transportation bill (TEA-21 is the current bill; SAFETEA will likely be passed in late 2004).

Increased general fund allocation means that General Funds must be diverted from other governmental services and/or programs. General obligation bonds provide initial capital for transportation improvement projects but add to the debt service of the governmental agency. One way to avoid increased taxes needed to retire the debt is to sell bonds repaid with a portion of the municipalities' State Class monies for a certain number of years.

Participation by private developers provides a promising funding mechanism for new projects. Developers can contribute to transportation projects by constructing on-site improvements along their site frontage and by paying development fees. Municipalities commonly require developers to dedicate right-of-way and widen streets along the site frontage. A negative side of the on-site improvements is that the streets are improved in pieces. If there are not several developers adjacent to one another at the same time, a continuous improved road is not provided. One way to overcome this problem is for the jurisdiction to construct the street and charge the developers their share when they develop their property.

Another way developers can participate is through development fees. The fees would be based on the additional improvements required to accommodate the new development and would be proportioned among each development. The expenditure of additional funds provided by the fees would be subject to the City's spending limit. However, development fees are often a controversial issue and may or may not be an appropriate method of funding projects.





## **5 Planning Issues and Guidelines**

Provided below is a discussion of various issues with a focus on elements that promote a safe and efficient transportation system in the future.

### **5.1 Guidelines and Policies**

These guidelines address certain areas of concern that are applicable to Moab's Transportation Master Plan.

#### **5.1.1 Access Management**

Moab's General Plan does contain some Access Management policies. In its Commercial Zoning section, it encourages development to "minimize the number of accesses (curb cuts)". This section will define and describe some of the aspects of access management for roadways and why it is so important. Access management can make many of the roads in a system work better and operate more safely if properly implemented. There are many benefits to properly implemented access management. Some of the benefits follow:

- Reduction in traffic conflicts and accidents
- Reduced traffic congestion
- Preservation of traffic capacity and level of service
- Improved economic benefits for businesses and service agencies
- Potential reductions in air pollution from vehicle exhausts

In Moab, Main Street has numerous driveways, with vehicles entering and exiting businesses, residences and sidestreets, increasing the opportunity for accidents.

#### **Definition**

Access management is the process of comprehensive application of traffic engineering techniques in a manner that seeks to optimize highway system performance in terms of safety, capacity, and speed. Access management is one tool of many that makes a traffic system work better with what is available.

##### **5.1.1.1. Access Management Techniques**

There are many techniques that can be used in access management. The most common techniques are signal spacing, street spacing, access spacing, and interchange to crossroad access spacing. There are various distances for each spacing, dependant upon the roadway type being accessed and the accessing roadway. UDOT has developed an Access Management Program and more information can be gathered from the UDOT website and from the Access Management Program Coordinator.

##### **5.1.1.2. Where to Use Access Management**

Access management can be used on any roadway. In some cases, such as State Highways, access management is a requirement. Access management can be used as an inexpensive way to improve performance on a major roadway that is increasing in volume. Access management should be used on new roadways and roadways that are to be improved so as to prolong the usefulness of the roadway.

### **5.1.2 Context Sensitive Solutions**

Context sensitive solutions (CSS) addresses the need, purpose, safety and service of a transportation project, as well as the protection of scenic, aesthetic, historic, environmental and other community values. CSS is an approach to transportation solutions that find, recognize and incorporate issues/factors that are part of the larger context such as the physical, social, economic, political and cultural impacts. When this approach is used in a project the project, becomes better for all of the entities involved.

### **5.1.3 Recommended Roadway Cross-Sections**

Moab City currently has adopted Design Guidelines that describe the roadway cross-sections. Moab City uses the Design Guidelines to develop the transportation system as roadways are reconstructed or new roadways are being constructed. The following paragraphs provide additional discussion on cross-sections.

Cross-sections are the combination of the individual design elements that constitute the design of the roadway. Cross-section elements include the pavement surface for driving and parking lanes, curb and gutter, sidewalks and additional buffer/landscape areas. Right-of-way is the total land area needed to provide for the cross section elements.

The design of the individual roadway elements depends on the intended use of the facility. Roads with higher design volumes and speeds need more travel lanes and wider right-of-way than low volume, low speed roads. The high use roadway type should include wider shoulders and medians, separate turn lanes, dedicated bicycle lanes, elimination of on street parking, and control of driveway access. For most roadways, an additional buffer area is provided beyond the curb line. This buffer area accommodates the sidewalk area, landscaping, and local utilities. Locating the utilities outside the traveled way minimizes traffic disruption in utility repairs or when changes in service are needed.

Federal Highway standard widths apply on the roads that are part of the state highway system. Also, all federally funded roadways in Moab and Garfield County must adhere to the same standards for widths and design.

## **5.2 Bicycles and Pedestrians**

### **Bicycles/Trails**

Bicycles are allowed on all roadways, except where legally prohibited, and as such should be a consideration on all roads that are being designed and constructed, and as roadway improvements are taking place. Due to the high level of interest in bicycling the Moab area, the City should encourage developers to include separate bicycle/pedestrian pathways in all new developments. Opportunities to include bicycle paths and increased shoulder width in

conjunction with a roadway project should be taken whenever technically, environmentally, and financially feasible.

A current Enhancement funded project will provide for a two-mile trail eastward along SR-128. It is important to note that as bike/trail facilities are planned, designed and constructed, Moab City is encouraged to review the connectivity of the trails systems in the area. With assistance from the Trail Mix Committee and others in the community, review of the connectivity of the trails systems should play an integral role in the decision making process for potential projects. In order to provide for a better quality of life for those in the community, the trails should be accessible to all users and incorporate ADA requirements.



The trails, when constructed, may have slight variances in application type due to possible differences in the terrain at a specific trail location or differing user needs. However, regardless of the design type, the applicable design standards found in the latest version of the AASHTO Guide for the Development of Bicycle Facilities should be followed, as well as the Manual on Uniform Traffic Control Devices (MUTCD) guidelines for appropriate signage of the trails system.

## **Pedestrians**

Every effort should be made to accommodate pedestrians throughout the City of Moab. An opportunity to include accessible sidewalks, while adhering to ADA requirements, during construction of other projects is encouraged. For the safety and convenience of pedestrian traffic, sidewalk placement should be free from debris and obstructions or impediments such as utility poles, trees, bushes, etc. Moab City should conduct a sidewalk inventory to document locations where there may be gaps or safety concerns in the sidewalk system. Effort should then be made to construct and complete the sidewalks where gaps or problems occur. Developers should be encouraged to include sidewalk placement or improvements in their respective project development plans.

Moab City, through the Transportation Enhancement program, was recently awarded funding for improvements to US-191. These enhancements will include bike lane striping, trees, new lighting, and textured concrete intersections. These pedestrian-friendly measures will add to the walkability of the downtown area and will be an improvement to the safety concerns voiced by residents.

There may be opportunity for Moab to make improvements to their sidewalk system through the Utah Department of Transportation's Safe Sidewalk Program, available through the Traffic and Safety Division. The City should contact UDOT's Region 4 office for application requirements.

Sidewalks in residential areas should be at least 5-feet wide whenever adequate right-of-way can be secured. This will provide sufficient room and a level of comfort to persons walking in pairs or passing and will specifically allow for persons with strollers or in wheelchairs to pass. On major roadways, sidewalks at least 6-feet wide and with a 6 to 10-foot park strip are desirable. In pedestrian-focused areas, such as schools, parks, sports venues or theaters, and in hotel and market districts, even wider sidewalks are recommended to accommodate and encourage a higher level of pedestrian activity, especially where tourist use would be expected. To ensure consistency of sidewalks throughout the area, UDOT's approved standard for sidewalks should be followed.

The City should be aware of, and coordinate with, the area schools which are tasked with developing a routing plan to provide a safe route to school. The routing plan is to be reviewed and updated annually. Information regarding the Safe Routes to School program is available by contacting the Utah Department of Transportation's Traffic and Safety Division.

### **5.3 Enhancements Program**

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) created the Transportation Enhancement program. The program has since been reauthorized in subsequent bills (i.e. TEA-21). The Transportation Enhancement program provides opportunities to use federal dollars to enhance the cultural and environmental value of the transportation system. These transportation enhancements are defined as follows by TEA-21:

The term 'transportation enhancement activities' means, with respect to any project or the area to be served by the project, any of the following activities if such activity relates to surface transportation: provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs (including the provision of tourist and welcome center facilities), landscaping and other scenic beautification, historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals), preservation of abandoned railway corridors (including the conservation and use thereof for pedestrian or bicycle trails), control and removal of outdoor advertising, archeological planning and research, environmental mitigation to address water pollution due to highway runoff or reduce vehicle caused wildlife mortality while maintaining habitat connectivity, and establishment of transportation museums.

The Utah Transportation Commission, with the help of an advisory committee, decides which projects will be programmed and placed on the Statewide Transportation Improvement



Program (STIP). Applications are accepted in an annual cycle for the limited funds available to UDOT for such projects.

## **5.4. Transportation Corridor Preservation**

Transportation Corridor Preservation will be introduced as a method of helping Moab's Transportation Master Plan. This section will define what Corridor Preservation is and ways to use it to help the Transportation Master Plan succeed for the City.

### **5.4.1. Definition**

Transportation Corridor Preservation is the reserving of land for use in building roadways that will function now and can be expanded at a later date. It is a planning tool that will reduce future hardships on the public and the City. The land along the corridor is protected for building the roadway and maintaining the right-of-way for future expansion by a variety of methods, some of which will be discussed here.

### **5.4.2. Corridor Preservation Techniques**

There are three main ways that a transportation corridor can be preserved. The three ways are acquisition, police powers, and voluntary agreements and government inducements. Under each of these are many sub-categories. The main methods will be discussed here, with a listing of some of the sub-categories.

#### **5.4.2.1. Acquisition**

One way to preserve a transportation corridor is to acquire the property outright. The property acquired can be developed or undeveloped. When the city is able to acquire undeveloped property, the city has the ability to build without greatly impacting the public. On the other hand, acquiring developed land can be very expensive and can create a negative image for the City. Acquisition of land should be the last resort in any of the cases for Transportation Corridor Preservation. The following is a list of some ways that land can be acquired.

- Development Easements
- Public Land Exchanges
- Private Land Trusts
- Advance Purchase and Eminent Domain
- Hardship Acquisition
- Purchase Options

#### **5.4.2.2. Exercise of Police Powers**

Police powers are those ordinances that are enacted by a municipality in order to control some of the aspects of the community. There are ordinances that can be helpful in preserving corridors for the Transportation Master Plan. Many of the ordinances that can be used for corridor preservation are for future developments in the community. These can be controversial, but can be initially less intrusive.

- Impact Fees and Exactions
- Setback Ordinances
- Official Maps or Maps of Reservation
- Adequate Public Facilities and Concurrency Requirements

#### **5.4.2.3. Voluntary Agreements and Governmental Inducements**

Voluntary agreements and governmental inducements rely on the good will of both the developers and the municipality. Many times it is a give and take situation where both parties could benefit in the end. The developer will likely have a better-developed area and the municipality will be able to preserve the corridor for transportation in and around the development. Listed below are some of the voluntary agreements and governmental inducements that can be used in order to preserve transportation corridors in the city limits.

- Voluntary Platting
- Transfer of Development Rights
- Tax Abatement
- Agricultural Zoning

Each of these methods has its place, but there is an order that any government should try to use. Voluntary agreements and government inducements should be used, if possible, before any police powers are used. Police powers should be tried before acquisition is sought. UDOT has developed a toolkit to aid in corridor preservation techniques. This toolkit contains references to Utah code and examples of how the techniques have been used in the past.

# Mill Creek Parkway

- Path
- Bridge
- Trail





# Mill Creek & Pack Creek Parkway

- Concrete Path
- Dirt or Woodchip Trail
- Bridge



Hecla Path  
Hecla Bridge  
Rotary Bridge

Mulberry Path  
400 E Underpass

Red Devil Trail  
300 E Blind Corner Underpass  
Red Devil Path

Cross Trails Bridge  
Main Street Underpass

100th Bridge Hospice Park

Millpack Bridge

500th Underpass

200 South Pack Bridge  
Sam Bridge

Saint Francis Bridge  
Same to Main Trail

Baseball Trail  
Base Barn Bridge  
Baseball Bridge  
Chevron Path

Pack Creek Path